Power Purchase Agreements and Lease Arrangements:
Tools to promote Distributed Renewable Energy

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Advantages to Power Purchase Agreements and Leases

There is interest by developers to establish distributed renewable electricity (DRE) systems in Kentucky. Such systems include solar arrays installed on homes and businesses, anaerobic digesters and fuel cells that convert biogas to electricity as well as micro hydroelectric facilities. Additionally, there are individuals, businesses and public institutions such as universities that want to pursue renewable electricity to reduce their environmental footprint, make a leadership statement and/or pursue economic opportunities. The challenge in Kentucky is that often pursuing these projects requires a sizeable capital investment. Those interested in renewable electricity may not be able to afford the upfront cost or may prefer to invest their capital elsewhere. Therefore, the high upfront cost becomes a barrier to renewable electricity development. Power purchase agreements and lease arrangements can remove this barrier for customers and developers alike.

Under a power purchase agreement (PPA), a developer owns and operates DRE systems for a single host (i.e., homeowner, university or business owner) who then buys the electricity from the developer directly. Under this arrangement it is the developers along with their investors who must provide the upfront capital for the system while the host buys renewable electricity per unit (kilowatt hour or kilowatt) under a long term contract. The kilowatt-hour price paid by the host is determined by agreement between the developer and the host. Additionally, the investors will use or monetize the federal tax credits and use the revenue to reduce the cost of the electricity sold or the equipment leased to the host. This makes the PPA advantageous to non-taxed entities that otherwise would not benefit from the significant tax incentives. Another advantage is that the developer maintains and operates the system for the host. Figure 1 describes the PPA.

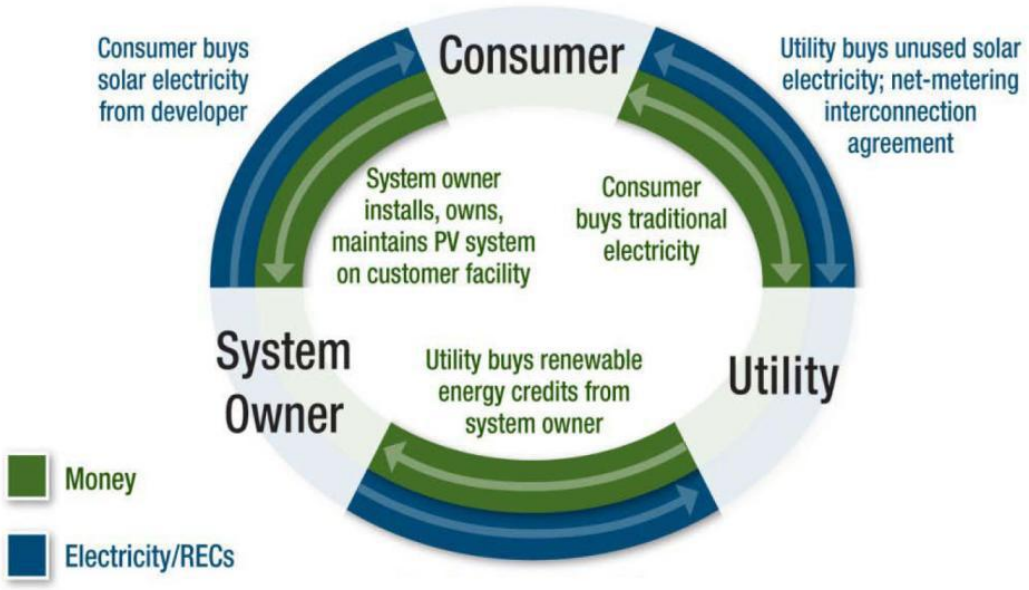


Figure 1 Power Purchase Agreement

Power Purchase agreements have been very successful in increasing demand for renewable energy, principally solar. A report provided by the National Renewable Energy Laboratory for Kentucky cites a study that concluded that 43% of non-residential systems (excluding utility scale systems) and 17% of residential systems installed in the United States in 2010 were financed and owned through a developer and investors. Together, this represented 23% of the total PV capacity installed in 2010. In Colorado, where PPA and lease arrangements were recently allowed, 36% of all residential systems installed in 2010 were set up as leases.

Allowing PPAs and leases of renewable electricity equipment will enable individuals and organizations to realize the benefits of renewable electricity. DRE systems can help a host meet their clean energy targets offsetting electricity produced by fossil energy with renewable energy. Five universities and colleges in Kentucky have committed to work towards climate neutrality and have identified renewable electricity—namely solar—as a tool to do so.[1] Additionally, DRE systems can improve a company's financial situation. A food processing company in Kentucky is burning biogas generated from a waste product to produce renewable electricity. Better managing waste while generating electricity, provides economic benefits for the company. Other companies may benefit from a similar system but may not want to incur the debt of the system. Also, allowing PPAs in Kentucky may attract companies that offer these financial arrangements, and the buying power of these companies across the country can drive down the cost of renewable energy equipment in Kentucky.

PPAs are developed on a voluntary basis and will not increase electricity rates for ratepayers who do not wish to pursue renewable electricity. Any premium paid is voluntarily covered by the host. Agreements between a host and PPA provider should be allowed. Projects that are developed would demonstrate the benefits of DRE systems further promoting onsite generation of renewable electricity. PPAs are not new to Kentucky. Electric utilities use them to purchase wholesale power from

[1] American College and University Presidents' Climate Commitment. http://www.presidentsclimatecommitment.org/

independent power producers. However, PPAs are not being arranged in Kentucky between a developer and an end user of electricity since PPAs are apparently disallowed as the Kentucky Public Service Commission has not made a ruling about their legality.

Lease arrangements are very similar to PPA arrangements in that the owner and operator of the system is not the end user of the electricity. The difference between leases and PPAs is that the lease contract involves the actual equipment and not the sale of electricity. The same advantages exist (i.e. removal of the upfront cost barrier and attracting companies to the state with significant buying power). However, lease arrangements appear to already be allowed based on current statutes. There is a challenge with leases regarding the net metering statute as described below.

Challenges with PPAs and Leases in Kentucky

Simply allowing PPAs and leases will not alone create demand for DRE systems. Other conditions must exist for developers and investors to initiate arrangements. For example lack of proper safety standards for installation and interconnection of DRE systems must be addressed. Perceived safety concerns could be a barrier. Fortunately, Kentucky's net metering and interconnection standards already ensure proper safety protocols are met. Additionally, with solar PPAs the value of a Solar Renewable Electricity Credit (S-REC) is important. The developer often sells the S-RECs for revenue. Currently, the price for S-RECs has fallen and is expected to remain deflated through 2013. Finally, the availability of the renewable resource and the cost of electricity avoided are important. For example, a PPA for a solar project may be difficult to arrange if the solar resource is limited and the cost of electricity in the region is low—two conditions that can limit the return on investment.

Kentucky's current net metering and interconnection laws create additional challenges. While the electricity generated is typically consumed behind the meter there may be times when excess power needs to flow onto the grid. Kentucky's net metering cap of 30 kilowatts may dampen interest for PPAs for larger systems and increasing the cap should be considered. Additionally, the net metering law requires that eligible customer generators own and operate the net metered system. Therefore a leased system or a system developed under a PPA could not be net metered and the consumer would not receive any of the net metering benefits.

As stated, PPAs appear to be disallowed in Kentucky with respect to renewable energy systems. The National Renewable Energy Lab, working under a technical assistance agreement, recently determined that legislation or a ruling by the Public Service Commission (PSC) is needed to clarify that PPAs are permitted in Kentucky. In Kentucky, electric utilities have exclusive rights to sell power in their service areas, and utilities—viewing PPA providers as competitors—will likely prohibit PPAs, and it appears they have the right to do so. In fact, developers who have approached electric utilities for permission to sell power have been denied. A utility's exclusive right to sell is important, and utilities are not likely to allow unconstrained competition in their service territory. Kentucky could pursue legislation or request review by the PSC to clarify that PPAs are permitted. If legislation is pursued, including provisions that limit PPAs could alleviate utilities' concerns regarding competition.

Legislation

Since PPAs are disallowed and leases are restricted by the current net metering law, developers and hosts are reluctant to enter into agreements. Interested parties in other states have found themselves in a similar situation and have turned to legislation to clarify that PPAs are allowed and that systems

developed by PPA or lease can be net metered. If Kentucky were to pursue legislation to allow PPAs there are two important provisions to include. First, providers of PPAs should be exempted as public utilities. If they are viewed as public utilities they will be subject to regulation by the Public Service Commission. The uncertainty with these arrangements is due to the notion of "public" and whether these developers can be viewed as serving the public. Legislation that specifically exempts them from the definition of public utility will help. Second, these arrangements need to be allowed for systems that operate on renewable energy sources since the intent is to increase production of renewable electricity by providing a PPA as a financing option. Regarding lease arrangements, the existing net metering statute that requires a system to be owned by an eligible-customer generator should be amended.

It is likely that there will be opposition by utilities, but certain provisions could be added to limit concerns by utilities. First, PPAs may be restricted to public or non-taxed entities. A case can be made that these types of consumers cannot receive the tax credits available for renewable energy systems and the PPA can provide the benefit of the incentive as the reduction in cost is passed through under the contract. Second, a cap could be included on systems developed through a PPA. This would constrain competition in a utility's service territory. A cap on net metered systems is already in statute. The cumulative capacity of net metered systems cannot exceed 1 percent of the utility's single hour peak load. A similar cap could be implemented or a portion of the net metering cap could be used. Given the current installed capacity (approximately 4 megawatts) of net metered systems in Kentucky, no one utility is close to seeing the cap met.

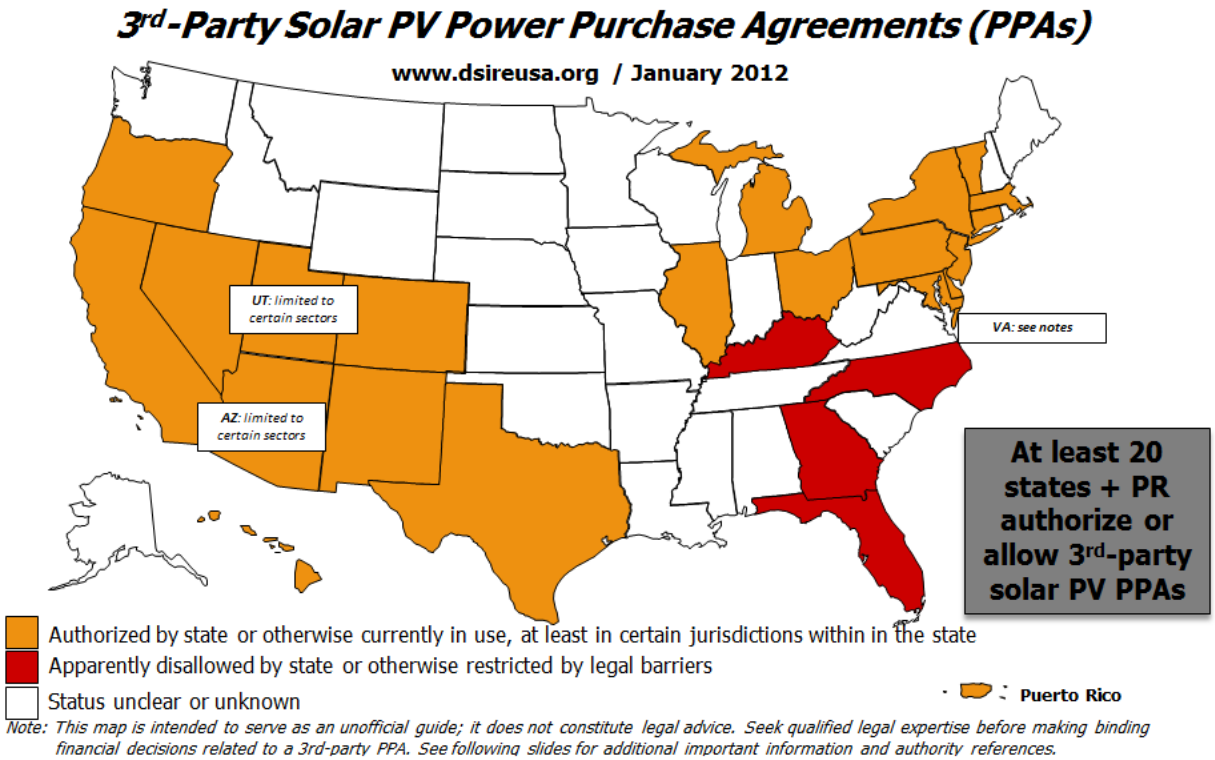
Legislation could:

- Define PPA providers and exclude the providers from regulation by the Public Service Commission (PSC);
- Allow PPAs for renewable electricity systems (solar, wind, hydro and biomass). A capacity cap can be used to ensure only distributed systems are developed;
- Require that net metered and third party DRE systems be reported to the PSC; and
- Establish these provisions in a new statute included with net metering statutes (KRS 278.465-8).
- Revise existing net metering statute (KRS 278.465) to remove the ownership requirement in the definition of "eligible customer-generator."

Additionally:

- Legislation could include a cap on systems developed through PPAs and leases similar to how net metered renewable systems are capped in KRS 278.466.
- PPAs and leases could be restricted to public or non-taxed entities**.**

State Efforts



Sources for additional information

- **Arizona**: ACC Decision 71795, Docket E-20690A-09-0346
- **California**: Cal. Pub. Util. Code § 218, § 2868
- **Colorado**: S.B. 09-051; PUC Decision C09-0990
- **Connecticut**: Connecticut Clean Energy Fund
- **Delaware**: S.B. 266 and S.B. 267 (2010)
- **Florida**: PUC Decision: Docket 860725-EU; Order 17009 (1987)
- **Georgia**: GA Territorial Act: O.C.G.A. § 46-3-1
- **Hawaii**: H.B. 704 (2011)
- **Illinois**: 220 ILCS 5/16-102; 83 Ill. Adm. Code, Part 465
- **Kentucky:** KRS 278.010 (3)
- **Massachusetts**: 220 CMR 18.00
- **Maryland**: H.B. 1057 (2009)
- **Michigan**: 2008 Public Act 286; PSC Order Docket U-15787
- **New Jersey**: N.J. Stat. 48:3-51; N.J.A.C. §14:8-4.1 et seq.
- **New Mexico**: H.B. 181 and S.B. 190 (2010) *(effective 1/1/2011)*
- **Nevada**: NRS 704.021 (AB 186, 2009); PUC Orders 07-06024 and 07-06027
- **New York**: NY CLS Public Service § 2.13
- **North Carolina**: General Statutes § 62-3(23)
- **Ohio**: PUC Order 06-653-EL-ORD
- **Oregon**: PUC Order, Docket 08-388
- **Pennsylvania**: PUC Order, Docket M-00051865
- **Puerto Rico**: No policy reference available; based on news reports and articles
- **Texas**: S.B. 981 (2011) (*effective 9/1/2011*)
- **Utah**: H.B. 0145 (2010) *(effective 3/31/2010, and limited to installations at public buildings, schools or 501(c)(3) non-profits)*
- **Vermont**: No policy reference available, based on news reports and communications
- **Virginia**: DSIRE had previously identified it as a state where 3rd party PPAs were authorized or otherwise currently in use, at least in certain jurisdictions within in the state, but has re-categorized VA to unknown status as of Oct 2011. See reference VA Code § 56-232 and 20VAC5-315-20